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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARK B. LESTER and MICHAEL C. JONES

Appeal 2009-006700
Application 09/678,032
Technology Center 3700

Decided: September 23, 2009

Before: TERRY J. OWENS, JENNIFER D. BAHR, and KEN B.
BARRETT, *Administrative Patent Judges.*

BAHR, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Mark B. Lester and Michael C. Jones (Appellants) appeal under 35 U.S.C. § 134 (2002) from the Examiner's decision rejecting claims 38-44. No other claims are pending in the application. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

The Invention

Appellants' claimed invention is directed to a method of securing an acetabular cup to an acetabulum. Spec. 1:5-7.

Claim 38, reproduced below, is representative of the claimed invention.

38. A method of securing an acetabular cup to an acetabulum, comprising the steps of:

reaming a hemispherically-shaped cavity into said acetabulum; and

press fitting said acetabular cup into said cavity, wherein (i) said acetabular cup including a cup body defining an apex portion, an upper rim and an outer surface extending therebetween, (ii) an imaginary hemisphere defines a great circle lying in a first plane P1, (iii) said cup body is further configured such that when said imaginary hemisphere is superimposed over said cup body, said upper rim lies in a second plane P2 that is spaced apart from said first plane P1 by a distance D, (iii) [sic] $0.5 \text{ millimeters} \leq D \leq 2.0 \text{ millimeters}$, and (iv) said cup body is further configured such that when said imaginary hemisphere is superimposed over said cup body, said outer surface of said cup body lies coincident with said imaginary hemisphere from said apex portion to said second plane P2.

The Rejection

The Examiner has rejected claims 38-44 under 35 U.S.C. § 103(a) as being unpatentable over Bateman (US 5,879,404, issued Mar. 9, 1999), Ries (US 5,782,928, issued Jul. 21, 1998), and Amstutz (US 4,123,806, issued Nov. 7, 1978).

SUMMARY OF DECISION

We AFFIRM.

ISSUES

Appellants argue claims 38-44 as a group. Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii) (2008), dependent claims 39-44 stand or fall with representative claim 38.

In rejecting claim 38, the Examiner concludes, in essence, that the combined teachings of Bateman, Ries, and Amstutz render obvious a method of securing an acetabular cup to an acetabulum, comprising the steps of reaming a hemispherically-shaped cavity into the acetabulum, as described by Ries, and press-fitting an acetabular cup which is a millimeter or two less than hemispherical in extent, as described by Amstutz, into the cavity. Ans. 4.

Appellants argue that, at best, a person of ordinary skill in the art would have been guided by the applied references to modify Bateman's cup to possess a toroidal shape, and then press-fit that toroidal shape into a true hemispherically-shaped cavity that was reamed into the acetabulum. App. Br. 6.

Accordingly, the issue raised in this appeal is:

Have Appellants demonstrated the Examiner erred in concluding that the combined teachings of Bateman, Ries, and Amstutz render obvious a method of securing an acetabular cup to an acetabulum, comprising the steps of reaming a hemispherically-shaped cavity into the acetabulum, and press-fitting an acetabular cup which is a millimeter or two less than hemispherical in extent, as described by Amstutz, into the cavity? In particular, would these references have prompted a person of ordinary skill in the art to consider any acetabular cup shape other than the toroidal shape described by Ries?

FACTS PERTINENT TO THE ISSUE

1. Bateman describes a conventional hip replacement surgery in which the acetabular cup having “a substantially hemi-spherical bearing surface” is press fitted into a prepared hip socket. Col. 1, ll. 11-12 and 18-24.
2. Bateman does not specify the shape of the prepared hip socket.
3. Ries evidences that it was conventional in the art of hip replacement surgery to ream the acetabular cavity to a contour which is generally complementary to the outer contour of the acetabular cup over at least some of its extent. Col. 1, ll. 36-63.
4. Ries teaches interference fitting an acetabular cup having an outer surface which is almost hemispherically shaped, but which gradually thickens continuously from its apex toward its outer rim as compared to a hemispherical shape, into a surgically prepared hemispherical socket. Col. 4, ll. 24-46; fig. 1. Ries describes the outer convex

- surface shape of the cup as “not completely hemispherically shaped, but rather [having] a toroidal shape.” Col. 4, ll. 27-28.
5. Amstutz teaches an acetabular cup which is a millimeter or two less than hemispherical in extent. Col. 6, ll. 5-8.
 6. Amstutz does not specify the shape of the socket into which the acetabular cup is fitted.
 7. The level of skill in the art of prosthetic hip replacement surgery is high, with the educational level of active workers in the field being at least a medical degree with several years of additional training, experience, and certifications in the specialty of orthopaedic surgery.
 8. Extensive studies have been conducted in the field of Appellants’ invention to ascertain the relative impacts on stability and bone strain of different types and degrees of interference fit between the acetabular cup and the prepared socket. Ries, col. 7, l. 10 to col. 8, l. 15.

PRINCIPLES OF LAW

Section 103 forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.”

KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of ordinary

skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 550 U.S. at 407 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”).

“Factors that may be considered in determining level of ordinary skill in the art include: (1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.”

Daiichi Sankyo Co. v. Apotex Inc., 501 F.3d 1254, 1256 (Fed. Cir. 2007) (quoting *Env'l. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696 (Fed. Cir. 1983)).

Rejections on obviousness grounds must be supported by “some articulated reasoning with some rational underpinning” to combine the known elements in the manner required in the claim at issue. *KSR*, 550 U.S. at 418. However, “the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.*

An improvement that is nothing more than the predictable use of prior art elements according to their established functions is likely to be obvious. *Id.* at 417.

Obviousness does not require that all of the features of the secondary reference be bodily incorporated into the primary reference. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Moreover, the artisan is not

compelled to blindly follow the teaching of one prior art reference over the other without the exercise of independent judgment. *Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889 (Fed. Cir. 1984).

Further, nonobviousness cannot be established by attacking the references individually when the rejection is predicated upon a combination of prior art disclosures. *See In re Merck & Co. Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

ANALYSIS

As shown by our findings above, the use of acetabular cups having outer surfaces approximating, but differing in some manner from, a hemispherical shape was well known in the art at the time of Appellants' invention (Facts 1, 4, and 5). For example, Amstutz teaches an acetabular cup which is a millimeter or two less than hemispherical in extent (Fact 5). This is the shape called for in Appellants' claim 38. While Amstutz does not explicitly specify the shape of the socket into which such acetabular cup is fitted (Fact 6), it was conventional in the art of hip replacement surgery to ream the acetabular cavity to a contour which is generally complementary to the outer contour of the acetabular cup over at least some of its extent (Fact 3). Moreover, it was known in the art to interference fit an acetabular cup having an outer surface which is almost, but not completely, hemispherically shaped into a surgically prepared hemispherical socket (Fact 4).

We find that the level of skill in the art of prosthetic hip replacement surgery is high, with the educational level of active workers in the field being at least a medical degree with several years of additional training, experience, and certifications in the specialty of orthopaedic surgery (Fact

7). Moreover, those of ordinary skill in this art have obtained a great deal of knowledge regarding the relative impacts on stability and bone strain of different types and degrees of interference fit between the acetabular cup and the prepared socket (Fact 8).

Appellants' argument that, at best, a person of ordinary skill in the art would have been guided by the applied references to modify Bateman's cup to possess a toroidal shape, and then press-fit that toroidal shape into a true hemispherically-shaped cavity that was reamed into the acetabulum, overlooks, or fails to fully appreciate, the level of skill in the art and the totality of the body of knowledge of the person of ordinary skill in the art, as evidenced by our findings above, while focusing too narrowly on the particular embodiments described by Ries. While Ries teaches a toroidal shape (Fact 4), other almost, but not completely, hemispherical cup shapes, including one as called for in claim 38 (Fact 5), were also known in the art at the time of Appellants' invention. The technique of interference fitting a known, almost, but not completely, hemispherical acetabular cup shape, such as the one called for in claim 38, into a prepared socket of at least partially complementary shape, namely, a hemispherical shape, which is known for use in combination with almost, but not completely, hemispherical shapes, is nothing more than the predictable use of prior art elements according to their established functions. *See KSR*, 550 U.S. at 417.

CONCLUSION

Appellants have not demonstrated the Examiner erred in concluding that the combined teachings of Bateman, Ries, and Amstutz render obvious a method of securing an acetabular cup to an acetabulum, comprising the steps

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of reaming a hemispherically-shaped cavity into the acetabulum, and press-fitting an acetabular cup which is a millimeter or two less than hemispherical in extent, as described by Amstutz, into the cavity. Therefore, Appellants have not persuaded us that the Examiner's rejection of claim 38, and claims 39-44, which fall with claim 38, should be reversed.

DECISION

The Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

hh

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